

June 29, 2014

Environmental Protection Agency
Mailcode 28221 T
1200 Pennsylvania Ave, N.W.
Washington, DC 20460

Re: Docket ID EPA-HQ-OPP-2014-0195

Dear Administrator McCarthy:

I am submitting comments on behalf of our certified organic farm located in North Dakota. We appreciate the opportunity to provide public comment regarding the proposed regulatory decision to register Enlist Duo containing glyphosate and the choline salt of 2,4-D for use on corn and soybeans genetically engineered (GE) to withstand exposure to 2,4-D and glyphosate.

Intensive, wide-scale adoption of GE-Roundup Ready technology “has led to rapid selection of 21 species of glyphosate-resistant weeds,” (Parker, 2011, pg.11). GE, herbicide-resistant (HR) technology has *failed to provide sustainable weed control* through the development of herbicide resistant weeds (Parker, 2011; Mortensen et al, 2012). We are witnessing increasing damage due to sub-lethal herbicide drift to the biodiversity on our farm and the integrity of our farming systems, which relies on an ecological balance to keep pests in check and provide the ecosystem services necessary for a healthy production system.

We have witnessed increasing use of glyphosate by neighboring farms who have adopted crops genetically engineered to be herbicide resistant (HR). We are now faced with even more herbicide use of even more toxic herbicides that are even more prone to drift.

Research indicates that injury resulting from combinations of 2,4-D with glyphosate can be more damaging than with either herbicide used alone (Wolfe et al. 2011), “leading to greatly increased herbicide use and inevitably to more off-site movement” (Parker, 2011) and greater drift-related injury to neighboring broadleaf crops, including most of our fruit and vegetable crops, and our hedgerows, greatly impacting biodiversity. “Landscapes dominated by synthetic auxin-resistant crops may make it challenging to cultivate tomatoes, grapes, potatoes, and other horticultural crops without the threat of yield loss from drift (Mortensen, 2012, pg. 81). Hedgerows and plants in a diversified farming landscape, which provide invaluable ecosystem services including food and habitat for pollinators and beneficial insects, are at risk (Mortensen, 2012). The risks and environmental impact on pollinators, who are already besieged and struggling for survival, is of grave concern. Last year our beekeeper informed us that he wasn’t sure he could continue to bring bees to our farm because “the environment in North Dakota is becoming too toxic for the bees.” Their services to agriculture and our ecosystem are irreplaceable and this will have a huge impact on our farms’ productivity.

“Weeds resistant to synthetic auxin herbicides [the class to which 2,4-D belongs], are already numerous, indicating auxin-resistance is prevalent in the plant world” (Freese & Crouch, 2013; Heap, 2014). Employing 2,4-D HR technology will be short-lived (Mortensen, 2012); much shorter than glyphosate HR crops. Continuing the promotion of HR technology, expecting a different result, is clearly unsustainable and a failure to carry out USDA’s mission of “promoting agriculture production sustainability.” Stacking of new herbicide-resistant traits with glyphosate resistance, necessitates the use of combinations of 2,4-D with glyphosate (Wright et al. 2010, Seifert-Higgins & Eberwine, 2010).

“Environmentally-induced” plant diseases are an “understood outcome” of off-target herbicide spray drift (Walker 1969). “The well-known history of disease syndromes caused by off-site movement of 2,4-D *and glyphosate* is such that many specialty crop growers, including organic growers, fear that their crops cannot be grown in a future landscape that will be inundated like never before with all of these active ingredients” (Parker, 2011).

Dow’s application proposes new uses of 2,4-D choline salt and/or glyphosate on Dow’s herbicide-resistant crops enable entirely novel post-emergence use of 2,4-D. These new use patterns will:

- be characterized by more frequent application of 2,4-D during a broader application window that extends later into the season (Mortensen, 2012).
- result in significantly faster evolution of weeds resistant to 2,4-D, dicamba, glyphosate and other herbicides (Ibid).
- coincide with particularly vulnerable plant growth stages of neighboring broadleaf crops and specialty production (Freese, 2012, Mortensen et al, 2012).
- result in an estimated 30-fold increase in the use of 2,4-D by the end of the decade, from “the existing 27 million lbs per year to over 100 million lbs per year” (CFS, 2012, pg. 15) threatening organic, non-GMO, and specialty crop production.

Exposure to 2,4-D has been linked to major health problems (Solomon & Wu, 2008; Cox, 2006) that include cancer, especially non-Hodgkin’s lymphoma, (Freese, 2012; Cantor, 1992); 2,4-D exposure has been linked to lower sperm counts, liver disease (Johnston et al., 2008; Leonard et al, 1997) and Parkinson’s disease (Tanner et al., 2009). 2,4-D adversely affects the hormonal, reproductive, neurological and immune systems (Freese, 2012). 2,4-D is contaminated with dioxins (EPA, 2005), “highly toxic chemical compounds that bio-accumulate..., potentially leading to dangerous levels of exposure” (Freese, 2012).

2,4-D is known to drift directly and through volatilization. The NDOAB is aware of Dow’s promise of a less volatile formulation and proper application techniques. However, herbicide applications are often conducted in less than ideal conditions. Weather patterns are increasingly volatile and unpredictable. Farms employing GE technologies have increased their acreages as a result of Roundup Ready technology and

have short windows of time to apply their herbicides and cover all their acres. This results in applications made under less than ideal conditions. Despite Dow's best educational efforts, spray drift will happen.

Spray drift poses a very real threat to rural economies and farmers growing crops not engineered to withstand applications of these potent chemicals. Non-GE farmers will bear:

- ☐ the costs of reduced yields and lost production,
- ☐ the burden of proving the source of any drift event,
- ☐ the costs associated with litigating damages with no assurance of compensation

Increased damages will result in increased claims. Insurance agents handling farm liability insurance policies will be less than willing to have their clients "admit" liability. This will force those who have experienced damage to litigate to collect damages, provided they can prove which application resulted in damage to their crop(s).

Organic farms, like ours, are particularly at risk. Pesticide drift has implications for organic certification AND the organic integrity of their farming systems. Organic farming systems are based on biodiversity and healthy ecosystems. Drift events have the potential to wipe out much of that biodiversity, harming ecosystem services, and resulting in an erosion of the resiliency of organic farming operations.

The USDA has placed the burden of sorting out these "coexistence" complexities on farmers working in good faith with their farming neighbors. However, the harsh realities of damages, losses, and lawsuits will make it difficult, if not impossible, to talk to your neighbor about mitigating this year's risks as you are litigating last year's damages.

The collateral damages associated with the escalating chemical warfare on herbicide resistant weeds include the loss of financial security, community and social capital, ecological health, and human-health; this is unacceptable.

There are alternatives to this intensification of the chemical warfare on herbicide tolerant weeds (Mortensen et al, 2012). To "Enlist" in the war on herbicide resistant weeds is not the only option! Organic and sustainable farmers are demonstrating viable alternatives that focus on increasing, not decreasing, biodiversity. Methods include: effective crop rotations, alternating cool and warm season crops, the use of cover crops and mulches, utilizing the natural weed-suppressive crops and crop varieties, and judicious, low-tillage methods. These methods are proven, sustainable, integrated weed management (IWM) strategies (Mortensen, 2012). The pesticide treadmill and the alternative IWM path are well-documented and well-worn paths-- one towards continued failure on the pesticide treadmill and one towards proven success with IWM.

The EPA is committed to ensuring that "all Americans are protected from significant risks to human health and the environment where they live, learn and work" and ensure "our communities and ecosystems are diverse, sustainable and economically productive." Deregulating 2,4-D resistant crops would be a failure of EPA's mission to "protect human health and environment". North Dakota Organic Advisory Board urges the

rejection of Dow's petition to deregulate its 2,4-D Resistant crops.

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